



Central Area Laboratory  
801 N. Morgan,  
Oklahoma City, Oklahoma 73127

Upstream Chemicals

REPORT DATE: 9/11/2015

## COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER:	MID CON ENERGY OPERATING	ACCOUNT REP:	SCOTT A WELLBROCK
DISTRICT:	KANSAS	SAMPLE ID:	201510013352
AREA/LEASE:	HARKER RANCH	SAMPLE DATE:	8/28/2015
SAMPLE POINT NAME:	HARKER RANCH 8	ANALYSIS DATE:	9/11/2015
SITE TYPE:	WELL SITES	ANALYST:	BS
SAMPLE POINT DESCRIPTION:	NOT PROVIDED		

### MID CON ENERGY OPERATING, HARKER RANCH, HARKER RANCH 8

FIELD DATA			ANALYSIS OF SAMPLE							
		ANIONS:		mg/L	meq/L	CATIONS:		mg/L	meq/L	
Initial Temperature (°F):	250	Chloride (Cl <sup>-</sup> ):		370.0		10.4	Sodium (Na <sup>+</sup> ):	740.8	32.2	
Final Temperature (°F):	80	Sulfate (SO <sub>4</sub> <sup>2-</sup> ):		724.2		15.1	Potassium (K <sup>+</sup> ):	0.0	0.0	
Initial Pressure (psi):	100	Borate (H <sub>3</sub> BO <sub>3</sub> ):		2.8		0.0	Magnesium (Mg <sup>2+</sup> ):	7.0	0.6	
Final Pressure (psi):	15	Fluoride (F <sup>-</sup> ):		ND			Calcium (Ca <sup>2+</sup> ):	37.7	1.9	
pH:		Bromide (Br <sup>-</sup> ):		ND			Strontium (Sr <sup>2+</sup> ):	0.4	0.0	
pH at time of sampling:		Nitrite (NO <sub>2</sub> <sup>-</sup> ):		ND			Barium (Ba <sup>2+</sup> ):	0.0	0.0	
		Nitrate (NO <sub>3</sub> <sup>-</sup> ):		ND			Iron (Fe <sup>2+</sup> ):	0.3	0.0	
		Phosphate (PO <sub>4</sub> <sup>3-</sup> ):		1.2		0.0	Manganese (Mn <sup>2+</sup> ):	0.0	0.0	
		Silica (SiO <sub>2</sub> ):		ND			Lead (Pb <sup>2+</sup> ):	ND		
							Zinc (Zn <sup>2+</sup> ):	0.0	0.0	
ALKALINITY BY TITRATION:		mg/L	meq/L							
Bicarbonate (HCO <sub>3</sub> <sup>-</sup> ):	610.0	10.0								
Carbonate (CO <sub>3</sub> <sup>2-</sup> ):	ND									
Hydroxide (OH <sup>-</sup> ):	ND									
			ORGANIC ACIDS:		mg/L	meq/L				
aqueous CO <sub>2</sub> (ppm):	49.5	Formic Acid:		ND			Molybdenum (Mo <sup>2+</sup> ):	ND		
aqueous H <sub>2</sub> S (ppm):	ND	Acetic Acid:		ND			Nickel (Ni <sup>2+</sup> ):	ND		
aqueous O <sub>2</sub> (ppb):	ND	Propionic Acid:		ND			Tin (Sn <sup>2+</sup> ):	ND		
		Butyric Acid:		ND			Titanium (Ti <sup>2+</sup> ):	ND		
		Valeric Acid:		ND			Vanadium (V <sup>2+</sup> ):	ND		
Calculated TDS (mg/L):	2494						Zirconium (Zr <sup>2+</sup> ):	ND		
Density/Specific Gravity (g/cm <sup>3</sup> ):	0.9989									
Measured Specific Gravity	ND									
Conductivity (mmhos):	ND							Total Hardness:	124	N/A
Resistivity:	ND									
MCF/D:	No Data									
BOPD:	No Data									
BWPD:	No Data	Anion/Cation Ratio:		1.03		ND = Not Determined				

